

Jan. 27, 1942.

H. ECKARDT

2,270,939

SOUNDPROOF WALL

Filed Feb. 7, 1940

3 Sheets-Sheet 1

FIG. 1

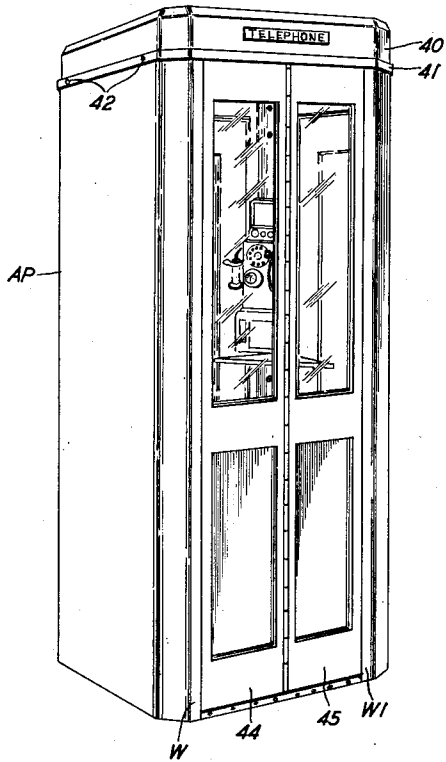
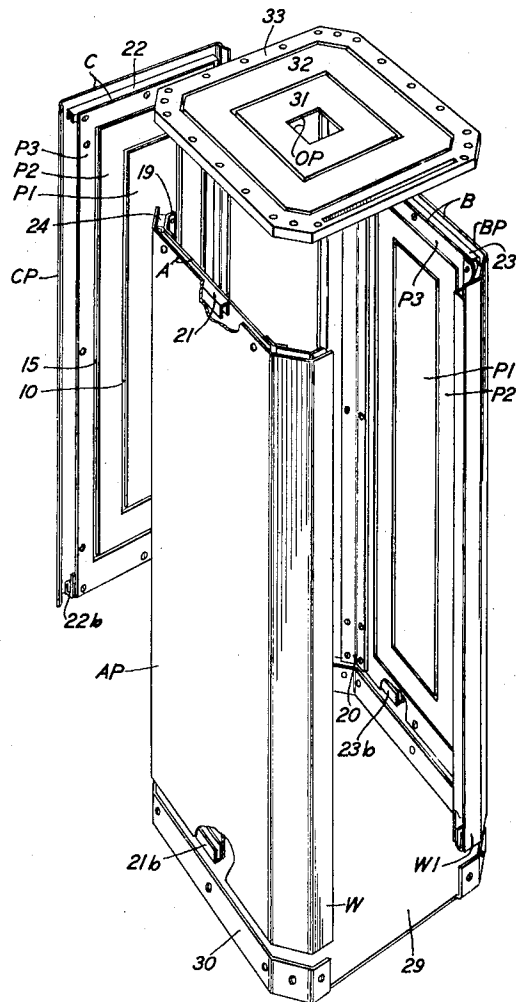


FIG. 2



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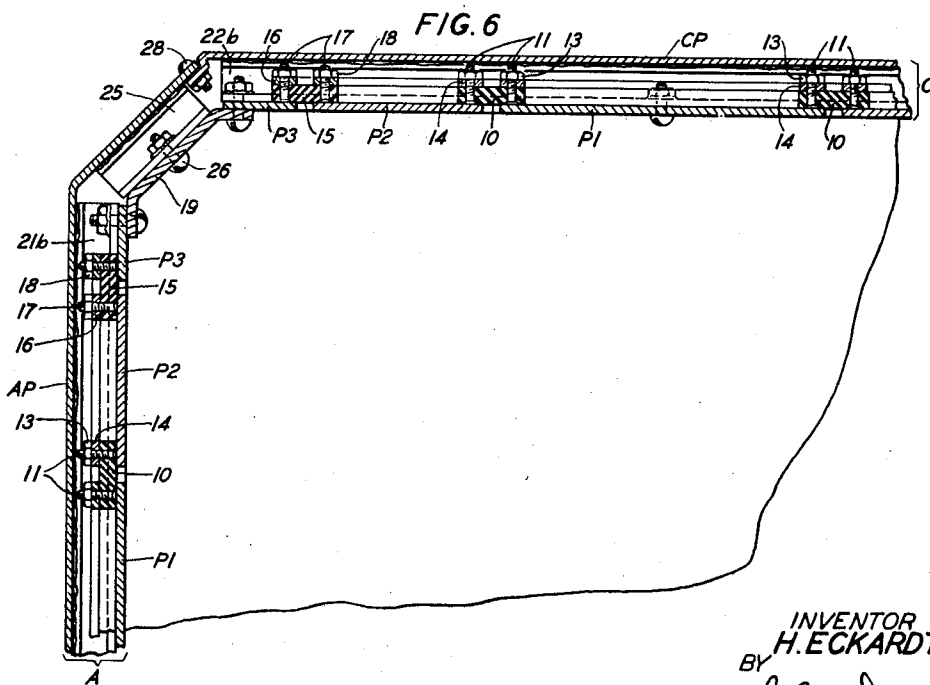
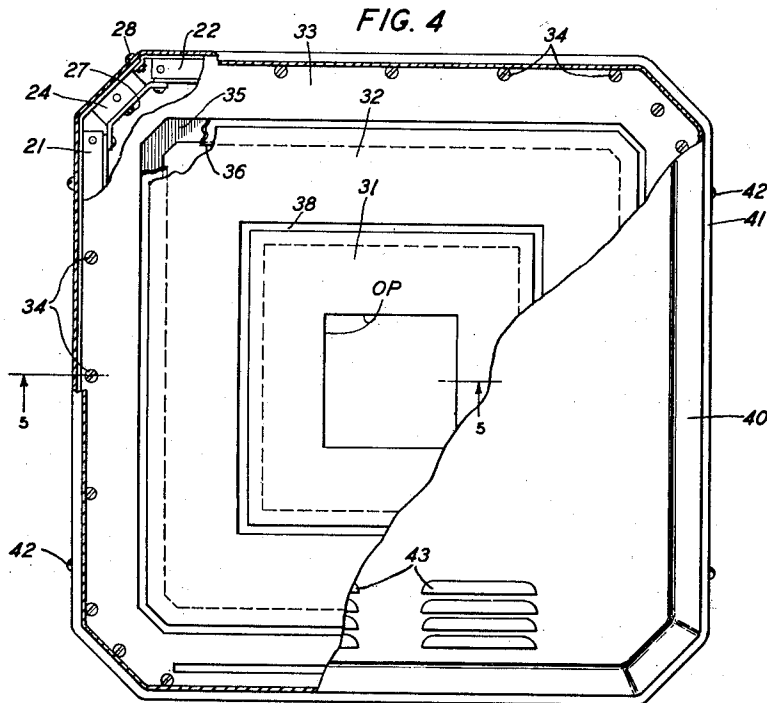
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SOUNDPROOF WALL

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4 Claims. (Cl. 189—34)

This invention relates to telephone booths and more particularly to sound-proof walls for use in connection with telephone booths and the like.

In telephone booths, for example, each of the walls and the ceiling is constructed of a single panel of wood or metal. These walls are held in assembled relation to each other along their vertically disposed edges to corner posts and at their lower and upper ends by the base and the ceiling of the booth, respectively.

Applicant has discovered that the transmission of sound through these walls and the ceiling is due mainly to the diaphragm action of these walls and the ceiling which results in a number of frequency regions of relatively high transmission at the fundamental mode of vibration and its overtones to be reverberated into the booth with the consequent interference to telephone conversations.

The object of the invention is the provision of a sound-proof wall which will be simple, cheap to manufacture and in which the diaphragm action is reduced to the lowest level.

In the drawings, Fig. 1 is an assembly view of a telephone booth embodying the wall of the present invention shown in perspective;

Fig. 2 is an exploded view;

Fig. 3 is a front elevational view shown with portions cut away, the door of the booth being shown in its open position;

Fig. 4 is a top view shown partly in section;

Fig. 5 is a partial view shown in section taken on line 5—5 of Fig. 4; and

Fig. 6 is a partial view showing the rear wall and one of the side walls in section taken on line 6—6 of Fig. 5.

According to the invention, the side walls A and B and the rear wall C of the telephone booth are each formed of a plurality of concentrically disposed panel sections P1, P2 and P3 as shown in Figs. 2, 3, 5 and 6 of different sizes and different natural periods of vibration. Panel sections P1 and P2 of each wall A, B and C are secured to each other at their peripheral edges by damping strips 10 of yieldable material such as rubber, these strips being clamped between the panel sections P1 and P2 and metallic strips 14 by screw-threaded studs 11 welded to the panel sections P1 and P2, and nut 13 engaging these studs.

Similarly the panel sections P2 and P3 of each wall are connected to each other around their peripheral edges by damping strips 15 of yieldable material clamped between the rear side of the panel sections P2 and P3 and the metallic

strips 16 best seen in Figs. 5 and 6 by screw-threaded studs 17 welded to the panel sections P2 and P3 and engaged by the nuts 18. The panel sections P3 are in turn secured along their vertical edges to common upright corner posts 19 and 20 shown in Figs. 2, 5 and 6, and along their top and lower edges to spacer bars 21—21b, 22—22b and 23—23b as shown in Figs. 2, 4, 5 and 6, these spacer bars being in turn secured to outer disposed side wall plates AP, DP and CP forming supports for the panel section assemblies.

The upright corner posts 19 and 20 are secured at their lower and upper disposed ends to spacer bars such as 24 and 25 shown in Figs. 4 and 6 by bolts, as 26 and 27, while the spacer bars 25 and 26 are in turn secured to the side plates AP and BP of walls A and B as by welding.

The rear wall C is held in assembled relation with the side walls A and B thus constructed by a plurality of bolts 28 best seen in Figs. 4 and 6, while a base 29 which is formed with an upright extending rim 30 is provided for holding the side walls A and B and the rear wall C in assembled relation at their lower ends.

The ceiling for the booth, as shown in Figs. 2, 4 and 5, consists of a plurality of concentrically disposed sections 31, 32 and 33 of different sizes and different natural periods of vibration. Section 33 is secured at its peripheral edge to the spacer bars 21, 22 and 23 by a plurality of screws 34, thus holding the side walls A and B and the rear walls C in assembled relation at their upper ends. The ceiling section 33 is formed with a peripherally disposed shoulder or bearing portion 35 best seen in Fig. 5 for supporting the ceiling section 32, while damping strips such as 36, which are made of yieldable material such as rubber, are placed between the sections 32 and 33. The ceiling section 32 in turn is formed with a peripherally disposed bearing portion 37 for receiving and supporting the damping strips 38 and the ceiling section 31, the damping strips 36 being adhesively attached to the ceiling sections 32 and 33, while the damping strips 38 adhesively connect the ceiling sections 31 and 32, the section 31 being provided with an opening OP for receiving a lighting fixture (not shown).

A roof 40, shown in Figs. 1, 3, 4 and 5, is provided with a peripheral rim portion 41 telescopically engaging the side walls A and B and the rear wall C and is held securely in position thereon by a plurality of screws 42, the roof 40

being provided with a plurality of lower members 43 provided to form in cooperation with the opening OP in the ceiling, an air path for the ventilation of the booth.

The side walls A and B are formed with front wall portions W and W' best seen in Figs. 1, 2 and 3, which in cooperation with the roof 40 form an opening for a door consisting of folding sections 44 and 45, the door section 45 being hinged to the wall portion W' of side wall plate BP.

It is to be understood that the walls thus constructed may include any number of sections which may be shaped to represent any geometrical figures or combination of these figures and that the wall of the invention is not limited for use solely in telephone booths but may be used in any room and other enclosed space it is desired to soundproof.

What is claimed is:

1. A sound-proof wall panel comprising a plurality of independent concentrically disposed sections having different natural periods of vibration interconnected to each other by joints of soft material, a supporting plate, and means for securing the outer disposed of said concentric sections in parallel spaced relation to said plate.

2. A sound-proof wall panel comprising a plurality of concentric independent sections shaped to represent predetermined geometrical figures, a supporting plate, flat thin strips of easily pliable material overlapping the adjacent peripheral edges of said sections, and a plurality of means for securing said strips to said sections for uniting the latter and for securing one of said sections in spaced parallel relation to said supporting plate.

3. A sound-proof wall for a telephone booth consisting of a panel made up of a number of sections of different sizes resiliently coupled together, a supporting plate, and means for securing said sections in parallel spaced relation to said plate.

4. A sound-proof wall consisting of a plate, spacer bars secured to said plate at the periphery thereof, a panel made up of a number of sections of different sizes resiliently coupled together, one of said sections forming a support for the other sections and having two of its peripheral edges secured to said spacer bars, whereby said sections are mounted in parallel relation to said plate.

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